



Attorney Docket No. 0756-2312

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Yasuyuki ARAI

Serial No. 09/847,308

Filed: May 3, 2001

For: METHOD OF MANUFACTURING A  
LIGHT EMITTING DEVICE

) Group Art Unit: 1762

) Examiner: M. Cleveland

) CERTIFICATE OF MAILING

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*Adam M. Stanger*

RESPONSE

Honorable Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The Official Action mailed August 23, 2005, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on November 27, 2004; and July 15, 2005.

The Applicant filed a further Information Disclosure Statement on August 26, 2005. The Applicant respectfully requests that the Examiner provide an initialed copy of the Form PTO-1449s evidencing consideration of the Information Disclosure Statement mailed August 26, 2005.

It has come to the attention of the Applicant that page 9 of the English translation of JP 10-335062 submitted with the Information Disclosure Statement filed on August 26, 2006 was inadvertently omitted (page 18 of 25 in the Image File Wrapper). Therefore, a Supplemental Information Disclosure Statement is submitted herewith in order to resubmit JP 10-335062 and a complete copy of the English translation of JP

10-335062. The Applicant respectfully requests that the Examiner provide an initialed copy of the Form PTO-1449s evidencing consideration of the Supplemental Information Disclosure Statement.

Claims 1-55 are pending in the present application, of which claims 1-4, 21, 22, 38 and 51 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraphs 5-23 of the Official Action reject claims 1-55 as obvious based on the combination of U.S. Patent No. 5,902,688 to Antoniadis et al. and U.S. Patent No. 6,049,167 to Onitsuka et al., either alone or in combination with one or more of the following: U.S. Patent No. 5,945,967 to Rallison et al.; U.S. Patent No. 5,534,314 to Wadley et al.; U.S. Patent No. 6,495,198 to Peng; U.S. Patent 6,537,607 to Swanson; U.S. Patent No. 5,921,836 to Nanto et al.; U.S. Patent 4,672,265 to Eguchi et al.; and U.S. Patent No. 6,294,892 to Utsugi et al. The Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

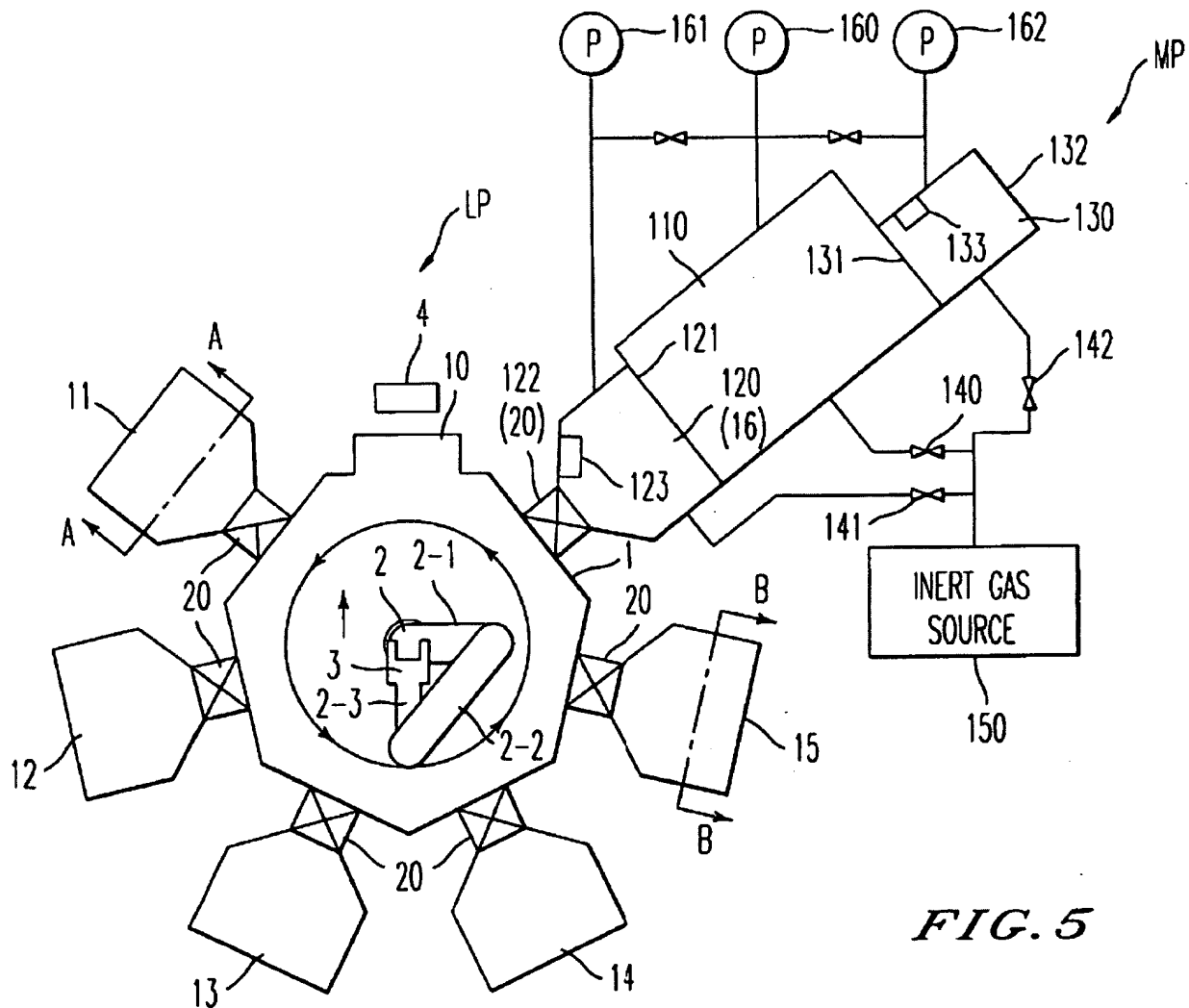
There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Antoniadis and Onitsuka or to combine reference teachings to achieve the claimed invention. MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be modified in the manner asserted in the Official Action, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the features of the present invention.

The test for obviousness is not whether the references “could have been” combined or modified as asserted in the Official Action, but rather whether the references should have been. As noted in MPEP § 2143.01, “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original). Thus, it is respectfully submitted that the standard set forth in the Official Action is improper to support a finding of *prima facie* obviousness.

Each of the independent claims recites evaporating an organic electroluminescence material in an inert gas atmosphere. The Official Action concedes that Antoniadis “does not teach that the vacuum atmosphere should be an inert gas” (page 3, Paper No. 20050818). In order to form a *prima facie* case of obviousness, the Official Action would need to show that it would have been obvious to one of ordinary skill in the art at the time of the present invention to change the atmosphere for the formation of an EL layer in Antoniadis from a vacuum atmosphere to an inert gas

atmosphere. However, Onitsuka does not teach or suggest why one would have been motivated to make such a change to Antoniadis.

Rather, Onitsuka only teaches that inert gas should be used in a step of carrying an organic EL multilayer structure or in a step of assembling a shield member. As seen in Figure 5 of Onitsuka, the inert gas source 150 is attached to gastight working chamber 100 (which itself comprises working chamber 110, fore-chamber 120 and aft-chamber 130). Onitsuka does not teach or suggest attaching inert gas source 150 either directly or indirectly to vacuum chambers 11-15.



**FIG. 5**

Camber 100 is not used in the formation of an organic EL display device. Chamber 100 is used to transport the completed organic EL display device from "film forming section LP where layers of organic EL multilayer structures are formed" to "assembly section MP where shield members are joined to the organic EL multilayer structures" (column 11, lines 56-59). The atmosphere to be used in film forming section LP is a vacuum atmosphere. In fact, chambers 11-15 are referred to as "vacuum chambers." Applying a gas source to a vacuum chamber would not make sense and is contrary to the teaching of the reference itself. As such, the disclosure of an inert gas atmosphere in Onitsuka does not extend to film forming section LP. Therefore, the Applicant respectfully traverses the assertion in the Official Action that it would have been obvious to change the chamber for forming an EL film in Antoniadis from a vacuum to an inert gas atmosphere.

Also, the Official Action asserts that it would have been obvious to form the layers of Antoniadis in an inert gas atmosphere based on the teachings of Onitsuka because Onitsuka "suggests that the use of inert gas avoids degradation that would have been experienced using moisture-containing atmospheres" (page 3, Paper No. 20050818). While this asserted motivation may be true with respect to the gas surrounding the completed element in the space D40, for example (see Figures 1 and 2), the asserted motivation does not relate to evaporating an organic electroluminescence material or any of the forming steps. Rather, the problems with moisture-containing atmospheres in Onitsuka are related to the above-referenced assembly section MP where shield members are joined to the organic EL multilayer structures. Therefore, the advantages for using inert gas in Onitsuka only relate to an assembly section MP where shield members are joined. At best, one of ordinary skill in the art might have been motivated to form an EL display device in accordance with Antoniadis and then move the completed EL display device into an inert gas atmosphere in the manner suggested by Onitsuka in order to attach a shield member. However, one of ordinary skill in the art would not have been motivated to remove the

vacuum in the film formation step, which is preferred in both Antoniadis and Onitsuka, and replace it with an inert gas atmosphere, which is only shown to be useful after film formation and for attaching a shield member.

Further, in the "Response to Arguments" section, the Official Action asserts that "Applicant's arguments regarding the teachings of Onitsuka of other steps in the process are not germane to the rejection" (page 9, Paper No. 20050818). The Applicant disagrees. The Official Action relies on the disclosure from column 12, lines 31-67 to allegedly teach vacuum evaporation and on a statement in the abstract to allegedly teach use of an inert gas atmosphere. However, as discussed in detail above, the use of an inert gas atmosphere in Onitsuka is not taught or suggested for vacuum evaporation. One must look to the specification of Onitsuka in order to understand the abstract and why it is used in Onitsuka. In fact, if one were to combine Antoniadis with Onitsuka, it would appear that one would still form the organic EL wafer 4 in a vacuum. Onitsuka does not teach away from use of a vacuum for film formation. As such, the Applicant's discussion of the full disclosure of Onitsuka is highly germane to the question of whether it would have been obvious to one of ordinary skill in the art at the time of the present invention to change the atmosphere for the formation of an EL layer of Antoniadis from a vacuum to inert gas. The Applicant respectfully submits that such change would not have been obvious based on the teachings of the prior art references of record.

Therefore, the Applicant respectfully submits that the Official Action has not shown that the prior art references of record contain sufficient motivation to suggest that one of ordinary skill in the art at the time of the present invention would have changed the atmosphere for the formation of an EL layer of Antoniadis from vacuum to inert gas.

Still further, it appears the Official Action is taking an extremely narrow interpretation of the abstract of Onitsuka to support the alleged modification of Antoniadis. As argued previously, the Applicant respectfully submits that the Examiner's interpretation of the last sentence of the abstract appears to be a

mischaracterization and in error. However, even if one were to ignore the teachings of the rest of Onitsuka, if one were to focus solely on the statement in the abstract and were to come to the conclusion that, at least in Onitsuka, inert gas should be used for film formation, the Official Action would still have to find motivation to combine Onitsuka with Antoniadis, particularly when Antoniadis is clearly directed to film formation in a vacuum. Such alleged motivation, as conceded by the Official Action, is not found in the abstract. Rather, the alleged motivation is found in the specification, and, as noted above, the alleged advantages that come from use of inert gas are related to the steps of moving the completed EL structure from the film forming section LP to the assembly section MP and forming a shield over the completed EL structure once inside the assembly section MP. In other words, the last sentence of the abstract of Onitsuka does not contain sufficient motivation to suggest changing the vacuum atmosphere for film formation in Antoniadis. If, at this point, the skilled artisan did not abandon the teachings of Onitsuka for an alleged combination with Antoniadis, the skilled artisan would necessarily consult with the specification of Onitsuka and find that the use of inert gas is not intended to replace a vacuum chamber, but rather is instead used in a process after film formation.

Rallison, Wadley, Peng, Swanson, Nanto, and Eguchi do not cure the deficiencies in the alleged motivation to combine Antoniadis and Onitsuka (see page 7 of the *Response* filed May 11, 2005). The newly cited reference, Utsugi, is relied upon to allegedly teach the features of dependent claims 44-50 and 55, but Utsugi does not cure the deficiencies in the alleged motivation to combine Antoniadis and Onitsuka.

Therefore, the Applicant respectfully submits that the Official Action has not provided a proper suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Antoniadis and Onitsuka or to combine reference teachings to achieve the claimed invention.

Furthermore, the Applicant respectfully submits that advantages for the claimed features are not recognized by the prior art of record. First, by forming a film in an inert

gas atmosphere, there is an advantage of forming a film selectively without using a mask (see, e.g., page 5, lines 5-9; Embodiment 1, page 6, line 5+; page 7, lines 7-11 and 16-17). Since a mean free process of evaporation of molecules become smaller, it becomes harder to scatter molecules circumferentially. Therefore, a region in which a film will be formed is limited due to characteristics of molecular flow. Conversely, when a distance between an injecting port of an evaporation cell and a substrate are controlled properly, a film can be formed selectively without using a mask.

Second, when a substrate is held in an inert gas, it becomes possible to prevent the substrate from unintended adhesion of impurities. Therefore, pollution of the substrate can be suppressed. Degas is generally caused by an inner wall of a vacuum chamber. As a result, the substrate is polluted. On the other hand, by forming a film in an inert gas atmosphere, there is an advantage of preventing the substrate from unintended adhesion of impurities.

Third, by forming a film in an inert gas, a very small amount of inert gas is taken into the film. When an inert gas such as Ar is taken into an organic thin film, crystallization of an EL layer can be avoided.

The above-referenced advantages of forming an EL layer in an inert gas are not taught or suggested by the prior art.


In the present application, it is respectfully submitted that the prior art of record, either alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.



Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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PTO/SB/21 (08-00)

**TRANSMITTAL  
FORM***(to be used for all correspondence after initial filing)*

<b>Application Number</b>	09/847,308		
	<b>Filing Date</b>	May 3, 2001	
	<b>First Named Inventor</b>	Yasuyuki ARAI	
	<b>Group Art Unit</b>	1762	
	<b>Examiner Name</b>	M. Cleveland	
<b>Total Number of Pages in This Submission</b>		<b>Attorney Docket Number</b>	0756-2312

**ENCLOSURES (check all that apply)**

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosures 1. Supplemental Information Disclosure Statement with PTO 1449 2. 3. 4. 5. 6.
<b>Remarks</b> <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 50- 2280 for the above identified docket number.		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

<b>Firm or Individual name</b>	Eric J. Robinson, Reg. No. 38,285 Robinson Intellectual Property Law Office, P.C. PMB 955 21010 Southbank Street Potomac Falls, VA 20165
<b>Signature</b>	
<b>Date</b>	11-22-05

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